

Name: Solutions

1. Without using a calculator, evaluate each inverse trig expression to determine the corresponding angle measure:

a) $\sin^{-1}\left(\frac{1}{2}\right) = \frac{\pi}{6} \text{ or } 30^\circ$	b) $\cos^{-1}\left(\frac{\sqrt{2}}{2}\right) = \frac{\pi}{4} \text{ or } 45^\circ$
c) $\sin^{-1}\left(\frac{\sqrt{3}}{2}\right) = \frac{\pi}{3} \text{ or } 60^\circ$	d) $\tan^{-1}(1) = 45^\circ \text{ or } \frac{\pi}{4}$
e) $\sin^{-1}\left(\frac{\sqrt{2}}{2}\right) = \frac{\pi}{4} \text{ or } 45^\circ$	f) $\cos^{-1}\left(\frac{1}{2}\right) = \frac{\pi}{3} \text{ or } 60^\circ$
g) $\tan^{-1}(\sqrt{3}) = \frac{\pi}{3} \text{ or } 60^\circ$	h) $\cos^{-1}\left(\frac{\sqrt{3}}{2}\right) = \frac{\pi}{6} \text{ or } 30^\circ$

i) $\tan^{-1}\left(\frac{\sqrt{3}}{3}\right) = \frac{\pi}{6} \text{ or } 30^\circ$	j) $\sin^{-1}(0) = 0 \text{ or } 0^\circ$
k) $\sin^{-1}(1) = \frac{\pi}{2} \text{ or } 90^\circ$	l) $\cos^{-1}(0) = \frac{\pi}{2} \text{ or } 90^\circ$
m) $\cos^{-1}(1) = 0 \text{ or } 0^\circ$	n) $\sin^{-1}(-1) = -\frac{\pi}{2} \text{ or } -90^\circ$
o) $\cos^{-1}(-1) = \pi \text{ or } 180^\circ$	p) $\sin^{-1}\left(\frac{-1}{2}\right) = -\frac{\pi}{6} \text{ or } -30^\circ$
q) $\cos^{-1}\left(\frac{-1}{2}\right) = \frac{2\pi}{3} \text{ or } 120^\circ$	r) $\tan^{-1}(-1) = -\frac{\pi}{4} \text{ or } -45^\circ$

$$\text{s) } \sin^{-1}\left(\frac{-\sqrt{3}}{2}\right) = -\frac{\pi}{3} \text{ or } -60^\circ$$

$$\text{t) } \cos^{-1}\left(\frac{-\sqrt{3}}{2}\right) = \frac{5\pi}{6} \text{ or } 150^\circ$$

$$\text{u) } \sin^{-1}\left(\frac{-\sqrt{2}}{2}\right) = -\frac{\pi}{4} \text{ or } -45^\circ$$

$$\text{v) } \cos^{-1}\left(\frac{-\sqrt{2}}{2}\right) = \frac{3\pi}{4} \text{ or } 135^\circ$$

$$\text{w) } \tan^{-1}(-\sqrt{3}) = -\frac{\pi}{3} \text{ or } -60^\circ$$

$$\text{x) } \tan^{-1}\left(\frac{-\sqrt{3}}{3}\right) = -\frac{\pi}{6} \text{ or } -30^\circ$$

2. USING A CALCULATOR, evaluate each inverse trig expression to determine the corresponding angle measure:

y) $\sin^{-1}(1.3) =$ <i>Not Possible</i>	z) $\cos^{-1}(-1.5) =$ <i>Not Possible</i>
aa) $\tan^{-1}(2) =$ <i>1.107 or 63.435°</i>	bb) $\tan^{-1}(13) =$ <i>1.494 or 85.601°</i>
cc) $\sin^{-1}(0.3) =$ <i>0.305 or 17.458°</i>	dd) $\sin^{-1}(0.5) =$ <i>0.524 or 30°</i>
ee) $\sin^{-1}(0.7) =$ <i>0.775 or 44.427°</i>	ff) $\sin^{-1}(0.9) =$ <i>1.120 or 64.158°</i>
gg) $\sin^{-1}(0.95) =$ <i>1.253 or 71.805°</i>	hh) $\sin^{-1}(0.99) =$ <i>1.429 or 81.890°</i>